that did not receive robot-assisted mechanical therapy. Checkpoints: 21, 42, 180 days.
Results.– We saw the dynamics of the scale ASIA in different periods of the effects of spinal cord injury as a function of rehabilitation programs, the decrease in muscle tone of the lower limbs on Ashworth spasticity scale, and changes in mobility and the needs of patients in the auxiliary properties of medium-distance movement in the Index Hauser. Central motor conduction time at TMS (m. tibialis anterior) of patients and control group with spinal cord injury at various stage also changed. The dynamics of psycho-emotional performance was estimated too.
Conclusion.– Thus, we believe that the use of the above methods of clinical and neurophysiological monitoring provides a complete evaluation of the effectiveness of rehabilitation at all stages.

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P170-e

Rotator cuff surgery in persons with spinal cord injury: Relevance of a multidisciplinary approach

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Keywords: Shoulder; Rotator cuff pathology; Surgery; SCI
Background.– Prospective review of 38 patients with SCI seen in our multidisciplinary consultation from January 2005 to September 2013 for pain in one or both shoulders.
Methods.– Clinical, functional and lesional check-up of patients presenting with rotator cuff pathologies.
Results.– Surgery was indicated and performed on 38 shoulders in 28 patients. The lesional assessment during surgery revealed injuries that were more severe than one could have thought based on imaging data. Main pain intensity in operated and non-operated groups was respectively 0 and 1.6 at rest and 2 and 4.9 during paroxysmal peaks. In average for patients who had surgery the functional independence measure (FIM) score decreased by 2.3. Mean satisfaction index of operated patients was 8.5/10.
Discussion.– When the surgical indication was based on a multidisciplinary decision, no negative results were reported that could have challenged the validity of this decision. Pain relief was the prime benefit reported post surgery. The functional status was modified due to the technical aids needed to prevent shoulder overuse. A multidisciplinary approach emerges as the solution to inform and educate patients in order to limit the risk of recurrence.

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P171-e

Post-rehabilitation participation restriction of spinal cord injured patient at Centre for the Rehabilitation of the Paralysed (CRP)

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Keywords: Participation; Restriction; Spinal cord injury; Rehabilitation
Introduction.– This study is designed to establish factors influencing the participation of spinal cord injury patients living in the community.
Methodology.– Purposive sampling methods were chosen in this descriptive type of cross-sectional study.
Results.– A total of 92 participants were selected of whom 82 were male and 10 female. Among the respondents, 43% had severe restriction, 23.7% had extreme restriction, 16.1% had moderate restriction, 8.6% had mild restriction and remaining 7.5% had no major restrictions in different activities mentioned sibility (77%), physical limitations (49%), poor family support (18%) and lack of self-confidence (11%). A majority of the respondents perceived their participation was sometimes sufficient in most activities such as opportunities for employment, domestic ADL, contributing financially to the family. A majority of the respondents also perceived one or more severe problems of participation in activities.
Discussion.– Although severity of injury and some social factors were found to be the main factors of restricting participation, some personal factors such as age at injury and education were also crucial factors. It is important to consider access to social support along with other factors in the person-environment interaction and their influence on clients' participation in rehabilitation.

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P172-e

Effects of electrical stimulation pattern on quadriceps isometric force and fatigue in individuals with spinal cord injury

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Functional electrical stimulation (FES) has often been used to facilitate exercise in individuals with spinal cord injury (SCI). However, rapid fatigue associated with electrical stimulation limits the effectiveness of FES. Stimulation patterns have traditionally consisted of constant-frequency trains (CFT) but it has been suggested that variable-frequency trains (VFT) may limit fatigue development and that switching stimulation patterns from CFT to VFT may offset the rapid fatigue [1–3]. The aim of the present study was to see whether a program composed of VFT followed by CFT would reach a targeted isometric force (50% of maximal force) more times than a program composed of CFT followed by VFT. Results showed a greater fatigue ($-36.5 \pm 7.9\%$ vs. $-29.5 \pm 2.6\%$, $P < 0.05$) and a lower number of successful contractions (7.2 ± 3.5 vs. 10.3 ± 3.7 contractions, $P < 0.05$) when the CFT pattern was applied first. These findings confirm that a stimulation pattern beginning with VFT is more fatigue resistant than one beginning with CFT and might allow offsetting the rapid fatigue occurring during functional quadriceps contractions in people with SCI.
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P173-e

Charcot-Spine arthropathy in a paraplegic patient with traumatic cord injury: A case report

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Keywords: Paraplegia; Charcot-spine; Arthrodesis
Introduction.– Charcot-Spine or neurogenic arthropathy of the spine is a rare complication of spinal cord injury. It is responsible for spinal instability may compromise the autonomy of the patient on a wheelchair.
Observation.– We report the case of a paraplegic patient with L1 cord injury treated by a simple laminectomy in 1999, with a shift towards a post-traumatic kyphosis. In 2004 kyphosis correction by osteotomy of L1, anterior graft and arthrodesis T8-L4. In 2012 degenerative changes of the lumbosacral area with bone destruction L4-L5 evoking a Charcot-Spine. The patient benefited from an extension of fusion to the sacrum anterior and posterior channels.
Discussion.– Charcot-Spine is responsible for progressive destruction of the spine below the injury. The hyper-constrained spine in paraplegics is an impor-

tant mechanical factor associated with sensory impairment. The clinical picture is to discuss face to impairment of spinal posture, a change in neurological examination and rarely the onset of pain. Treatment often requires extensive anterior and posterior arthrodesis with bone graft.

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P174-e

Diffuse idiopathic skeletal hyperostosis (DISH) causes autonomic dysreflexia in SCI

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Keywords: DISH; Tetraplegic; Dysreflexia

Introduction.– Diffuse idiopathic skeletal hyperostosis is a cause of cervical spinal cord injury. Autonomic dysreflexia is produced to tetraplegics and above T6 level paraglegics due to noxious stimuli below the level of the injury originated by bladder and bowel dysfunction and by many other cases derived from all systems of the human body.

Observations.– In this study we present a 45-year-old man with C7 (left) C8 (right) complete spinal cord injury for 20 years. This man was referred to our department suffering from elevated blood pressure up to 26 mmHg and headache while sitting in his daily wheelchair. Symptoms were relieving while he was laying on his bed. The fluctuation of symptoms did not set the necessity for drug therapy. Tests for "usual suspects" causes were negative. In Thoracic spine X-ray DISH was diagnosed which was symptomatic only in sitting position during his breathing maneuvers to activate diaphragm. After the diagnosis was set, NSAIDs therapy combined with sitting and postural patterns education and thoracolumbar orthosis, symptoms were subsided.

Discussion.– Investigating the causes of autonomic dysreflexia should always take into account the common and the rare.

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P175-e

High intensity body weight support treadmill training improves walking ability without increase of spasticity in a chronic incomplete tetraplegia: A single case study

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Keywords: Body weight support treadmill training; Incomplete tetraplegia; Walk; Spasticity

In last decade, Body Weight Support Treadmill Training (BWSTT) has shown walking improvement after SCI but effect on spasticity remains unaddressed. The aim was to assess the BWSTT effects on both walking and spasticity level after incomplete tetraplegia.

Methods.– A 30 years old female with chronic incomplete tetraplegic (AIS D) was included. Intervention consisted in 20 BWSTT one-hour sessions, repeated 5 days a week, lasting 4 weeks. Kinematic walking recording, six minutes walking test (6MWT) and spasticity assessment using Ashworth modified scale was performed before and after the intervention.

Results.– After intervention, velocity increase from 0.61 ms^{-1} to 0.8 ms^{-1} related to cadence increase from 75 to 93 steps a minute. 6MWT reveals a distance increase from 198 to 336.6 m. Kinematic evidence improvements both during support phase without knee recurvatum and ankle flexion increase (5° to 20°) and during swing phase with knee flexion increase (10° to 30°) and ankle extension decrease (15° to 5°). No spasticity increase was reported.

Discussion.– BWSTT lead to an improvement of both performance and quality of walk without spasticity increase in a participant with chronic incomplete tetraplegia.

Conclusion.– BWSTT should be recommended after incomplete tetraplegia without fear of negative effect.

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P176-e

Employment after spinal cord injury

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Introduction.– The purpose of this study was to describe difficulties and aspects of employment after spinal cord injury (SCI) in patients with SCI who were employed before their SCI.

Methods.– We examined cases of the 650 members (510 males and 140 females) with known addresses in the biggest association of SCI patients aged from 18–72 years with average time since SCI 9 years. We excluded 95 men and 37 women that were pensioners at SCI time. From the remaining 518 patients, 230 were employees of public sector. From the rest 288, 195 were employees of private sector. Ninety-three patients were not employed at SCI time. We separated them in four categories according to spinal cord level (T6 and lower, T1 to T6, A7, A6).

Results.– 50.4% of SCI patients who were public servants returned to their job while the percentage for private sector was 25.6%. From those who were not employed before SCI 55.9% found a job.

Conclusion.– Returning to work must be one of rehabilitation's targets. In our country the social services with the contribution of EU and the reduction of architectonical barriers offer the opportunity to patients with SCI to have an employment.

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P177-e

Thermographic evaluation of the rehabilitation program effects on peripheral circulation in patients with spinal cord injury

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Keywords: Thermographic evaluation; Rehabilitation; Spinal cord injury

Introduction.– The increasing incidence of spinal cord injuries, especially in young active people, lead to the need for new therapeutic solutions. The aim of our study was to assess through thermographic evaluation whether there is an improvement in peripheral circulation after rehabilitation.

Methods.– We assessed a number of 40 patients admitted in the III-rd Clinic of the National Institute of Physical Medicine and Rehabilitation. We divided the patients in 2 groups: 19 patients who received only physiotherapy and 21 patients who received physiotherapy and electrotherapy. They followed a 3-week rehabilitation program, 2 times per day. The clinical and functional assessment (SF-36, ASIA score) has been performed at the beginning and after the treatment. Thermographic evaluation has been performed at day 1, 7, 21 of the treatment, before and after each session of treatment, using Thermalcam Flir and Glamorgan protocol.